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AUTHOR	Moodie, Allan G.; Hoen, Robert
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ABSTRACT

DISTAR programs were used in learning assistance classes at five Vancouver schools during 1971-72. Those pupils who were taught with the DISTAR Arithmetic program made sizable gains in scores on the Arithmetic subtest of the Metropolitan Achievement Test, but the difference between the gains made by experimental and control groups in arithmetic was not statistically significant. Control groups were not available in the evaluation of DISTAR Reading and Language achievement. Those pupils taught with DISTAR Reading programs made sizable gains on the "Word Knowledge," "Word Discrimination," and "Reading" subtests of the Metropolitan Test. The DISTAR Language pupils made good progress as measured by the "Reading" subtest but not on the "Word Knowledge" and "Word Discrimination" subtests. Taped interviews with DISTAR Language I pupils showed no noteworthy changes in spoken language. Teachers' opinions of DISTAR were very favorable. Observations of DISTAR classes showed that the teachers' use of DISTAR was consistent with the program's direction. Observations also yielded the impression that children enjoyed DISTAR. The study did not provide any objective support for DISTAR, but in view of the strong subjective support and acknowledging the limitations of the study, further consideration of DISTAR's value is recommended. (Author)

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RESEARCH REPORT

Evaluation of DISTAR Programs in Learning Assistance Classes of Vancouver 1971-72

July, 1972

Allan G. Moodie
Robert Hoen

Research Report 72-18

Department of Planning and Evaluation
Board of School Trustees
1595 West 10th Avenue
Vancouver 9, B. C.

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This study is an extension of the "Evaluation of DISTAR Materials in Three Junior Learning Assistance Classes" prepared by Miss Lynne Guinet, July 1971. (Research Report 71-16)

EVALUATION OF DISTAR PROGRAMS IN LEARNING ASSISTANCE CLASSES OF VANCOUVER 1971-72

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EVALUATION OF DISTAR PROGRAMS IN LEARNING ASSISTANCE CLASSES OF VANCOUVER 1971-72

Abstract

DISTAR programs were used in learning assistance classes at five Vancouver schools during 1971-72.

Those pupils who were taught with the DISTAR Arithmetic program made sizable gains in scores on the Arithmetic subtest of the Metropolitan Achievement Test, but the difference between the gains made by experimental and control groups in arithmetic was not statistically significant. Control groups were not available in the evaluation of DISTAR Reading and Language achievement. Those pupils taught with DISTAR Reading programs made sizable gains on the "Word Knowledge", "Word Discrimination", and "Reading" subtests of the Metropolitan Test. The DISTAR Language pupils made good progress as measured by the "Reading" subtest but not on the "Word Knowledge" and "Word Discrimination" subtests. Taped interviews with DISTAR Language I pupils showed no noteworthy changes in spoken language. Teachers' opinions of DISTAR were very favourable. Observations of DISTAR classes showed that the teachers' use of DISTAR was consistent with the program's direction. Observations also yielded the impression that children enjoyed DISTAR.

The study did not provide any objective support for DISTAR: but in view of the strong subjective support and acknowledging the limitations of the study, further consideration of DISTAR's value is recommended.

EVALUATION OF DISTAR PROGRAMS IN LEARNING ASSISTANCE CLASSES OF VANCOUVER 1971-72

Introduction

The Direct Instructional System for Teaching and Remediation (DISTAR)[1] contains programs for teaching the basic skills and concepts in reading, language and arithmetic. It has developed from the basic assumptions that:

1. Children learn what they are taught;
2. The necessary basic skills and concepts are the same for all children;
3. It is possible to teach all of these necessary skills and concepts by means of a suitable instructional program.

The development of various DISTAR programs has included:

- a thorough task analysis of the subject area,
- a logical programming of task components,
- a prescription of teaching routines incorporating correction procedures,
- an emphasis on reinforcement techniques, and
- an incorporation of testing (which is used as a teaching aid as well as a means of determining what the children have been taught).

The system is designed for small groups and requires the maximum participation of each child, thus providing the benefits of individual instruction with maximum instantaneous feedback to the teacher. Emphasis is constantly placed upon the idea of success rather than failure.

DISTAR is organized into the Reading I and II, Language I and II, and Arithmetic I and II programs. Level III programs in each subject are also planned. Approximately one year's time is required for a typical group to complete one level of a program; however, some groups of children may move at a faster rate and finish a level sooner (thus moving into the next level), while others may require more than a year to complete a level.

Case studies of the effects of DISTAR have been conducted by the program's developers, by the publisher (Science Research Associates), and by independent users of the program. Many of these case studies have been published by S. R. A. The history of DISTAR's development has been studied by the American Institute for Research.

[1] DISTAR is sometimes interpreted to be "Direct Instructional System for Teaching Arithmetic and Reading".

The Program in Vancouver

During 1971-72 the following DISTAR programs were used in learning assistance classes at five schools (an increase of two schools from the previous year):

Arithmetic I	- Emily Carr Elementary School
Arithmetic I and II	- Sir James Douglas Annex
Language I	- General Brock Annex
Reading I	- Lord Elementary School
Reading I and II	- Henry Hudson Elementary School

The Arithmetic II and Reading II programs were introduced at the two schools which participated in the DISTAR I programs in 1970-71.

Evaluation -- Pupils' Achievement in Arithmetic, Reading, and Written Language

The Primary I and II Batteries of the Metropolitan Achievement Test were administered in pre- and post-test sessions to measure the changes in achievement of the DISTAR pupils. Pre- and post-test scores for each subtest were transformed into grade equivalents.

Statistical "t" tests were used to determine if the differences between the mean scores for the experimental group using each DISTAR program were significantly different from that for a control group.

For the evaluation of Arithmetic I and II, achievement was measured by:

1. the Arithmetic Concepts and Skills subtest in the Primary I battery, or
2. the combined Computation, Concept and Problem Solving subtests in the Primary II Battery of the Metropolitan Achievement Test.

The analysis of results on these tests appears in Table I. Most of the DISTAR pupils made sizable gains in the scores on the Metropolitan Tests between the pre-test and post-test sessions. The difference between the gains made by experimental and control groups was not statistically significant.

TABLE I: ANALYSES BY "t" TEST OF METROPOLITAN ACHIEVEMENT SCORES FOR SPECIAL EDUCATION PUPILS ON THE DISTAR ARITHMETIC I AND II PROGRAMS AS COMPARED TO THOSE ON OTHER DISTAR PROGRAMS

	Metropolitan Achievement Test	
	Arithmetic Concepts and Skills	
	Experimental Group	Control Group
Number of Subjects	14	24
Mean Gain in Grade Equivalent	0.07	0.13
Standard Deviation	0.26	0.48
Difference Between Means	- 0.06	
"t" Value	0.43 (n. s. d.)	

Legend: (n. s. d.) -- no significant difference

TABLE II: MEAN GAINS IN GRADE EQUIVALENT SCORES ON METROPOLITAN ACHIEVEMENT TESTS FOR SPECIAL EDUCATION PUPILS ON THE DISTAR LANGUAGE I AND READING I AND II PROGRAMS

	Metropolitan Achievement Test					
	Word Knowledge		Word Discrimination		Reading	
	Language I	Reading I & II	Language I	Reading I & II	Language I	Reading I & II
Number of Subjects	7	11	6	11	6	11
Mean Gain in Grade Equivalent	0.04	0.39	- 0.05	0.52	0.27	0.35
Standard Deviation	0.24	0.55	0.57	1.02	0.19	0.38

For the evaluation of the Language I and of the Reading I and II DISTAR programs, achievement was measured by the Word Knowledge, Word Discrimination and Reading subtests in the Primary I or Primary II Battery of the Metropolitan Achievement Test (See Table II).

For the evaluation of achievement by pupils on the DISTAR Language I program and by pupils on the DISTAR Reading I and II programs it was not possible to establish control groups. For the Language and for the Reading groups the mean gains in grade equivalent score on the Metropolitan Subtests are listed in Table II. It will be noted that the Reading group made sizable gains on all three subtests. The Language group made good progress on the Reading subtest and little or no progress on the other two subtests.

Pupils' Achievement in Spoken Language

Achievement in spoken language is important to a study of DISTAR, but particularly difficult to evaluate. An attempt was made to evaluate changes in the spoken language of the children who were taught with the DISTAR Language I materials. The children were interviewed as a group in October, March, and June, and the dialogues were recorded on tape. Unfortunately, technical problems prevented the last of the three interview recordings from being utilized. There were four children who participated in both the October and the March interviews. Their responses are transcribed in Appendix A. Aside from some improvement in the children's willingness to speak, no noteworthy changes in spoken language were found from these interviews. No definite conclusions should be drawn, however, from these few data.

Responses of DISTAR Teachers to a Questionnaire

A questionnaire devised by Lynne Guinet in 1971 was administered again this year. (See Appendix B).

The following positive opinions were held by all, or by four, of the five teachers:

- I like the DISTAR system. (4 teachers)
- I would like to teach another DISTAR subject. (4 teachers)
- Most of the children like DISTAR. (4 teachers)
- Most of the children pass the tests in the books. (4 teachers)
- I would like to use DISTAR again. (4 teachers)
- If I had more help, I would like to use more than one DISTAR system in my class. (4 teachers)
- I like the highly structured nature of the DISTAR systems. (4 teachers)
- I think it is a good way to teach. (4 teachers)
- The children are learning the DISTAR material. (5 teachers
- Very poor students seem to be improving. (4 teachers)
- I feel confident teaching DISTAR. (4 teachers)
- My preparation to teach DISTAR was adequate. (4 teachers)

Of the negative responses that were possible in the questionnaire, only the following were made by as many as 3 of the 5 teachers:

- I need more help in the classroom. (3 teachers)
- A few children are bored with repeating lessons. (3 teachers)
- One or two children seem to hold up the group, i.e., perform poorly or disturb the class. (3 teachers)

It is noteworthy that the teachers' responses were quite consistent with those found by Lynne Guinet.

Class Observations

One of the writers was able to observe four of the five classes using DISTAR. The purposes of the observations were:

1. to find out whether the teachers were using the DISTAR materials as directed by the program's creators, and
2. to gather impressions of how the children responded to the program.

The teachers' use of the DISTAR materials was consistent with the program's directions in all of the classes observed. With few exceptions, the teachers closely followed the highly structured DISTAR procedures. The program's emphasis on particular procedures for correcting errors and for reinforcing desired responses was quite faithfully implemented. In all of the classes observed, the children were instructed in small groups (ranging from 4 to 8 members); and in every case, the teacher saw to it that each child participated frequently. Slight differences were found among the four teachers in the pace of instruction, but in only one case was any doubt raised in the observer's mind as to the appropriateness of the pace. Some differences were also observed among the four teachers in the degree of liveliness and enthusiasm brought to the lessons, but all four teachers led the lessons adequately in this respect.

In all four classes observed, most of the DISTAR children obviously enjoyed their lessons. With few exceptions, the children's attention lasted throughout, and they were eager to do the workbook exercises after the oral part of the lesson was completed. Many of the children took pride in their competence to respond quickly and correctly.

Conclusion

This study does not provide any objective support for the DISTAR Instructional System. It should be emphasized, however, that the study has severe limitations. It should also be remembered that strong subjective support for DISTAR was found. Further study of the value of DISTAR is therefore recommended.

APPENDIX A

TRANSCRIPTION OF THE INTERVIEW RESPONSES OF FOUR DISTAR LANGUAGE I PUPILS IN OCTOBER 1971 AND IN MARCH 1972

TRANSCRIPTION OF THE INTERVIEW RESPONSES OF FOUR DISTAR LANGUAGE I PUPILS IN OCTOBER 1971 AND IN MARCH 1972 *

CHILD #1

October

Interviewer: What are we going to do in the Halloween party?

Child: We're going to cook hot dogs, and - um - we're going to have cookies and pop.

Interviewer: What is your mask going to be?

Child: Um - ... it's going to be a mask with a party hat on it.

Interviewer: What are you going to be sure you do before you cook?

Child: Um - we're going to put our apron on and then we're going to cook.

March

Interviewer: What did you like about the art gallery?

Child: The - the pictures and ... and ... and the sisters ... and ... um ... and the stuffed mummy.

Interviewer: What picture did you like best?

Child: Um - the one where they were getting married.

Interviewer: What did you do last week?

Child: Um... I went and saw - um - some - went to a show with my family, and I saw some Eskimo drawings, and ... and I saw "Hansel and Gretel".

*The transcription is not intended to give a running record of the dialogue. The responses recorded here are taken from a group interview and organized here for the purpose of studying the changes in the spoken language patterns of each individual child.

CHILD #2

October

Interviewer: What are we going to do with the hot dogs?

Child: Oh - uh - sell them.

Interviewer: What is your mask going to be?

Child: A monster.

Interviewer: What are the boys going to do before they give out the hot dogs?

Child: Wash their hands.

March

Interviewer: What did you like about the art gallery?

Child: The doors, and - uh - that ... that picture what moves, and, ... that ... that white thing, that guy.

Interviewer: What did you do last week?

Child: (No answer)

Interviewer: What did you do on Saturday?

Child: Last Saturday? Went out and ... (no further response)

Interviewer: Did you go out with someone?

Child: Yeah.

Interviewer: Tell us about it.

Child: (No answer)

Interviewer: Now he remembers what he did.

Child: I went to a movie and I saw a lot of snow... and lots of ice in the house ... uh ... get killed - uh - a whole bunch of blood.

CHILD #3

October

Interviewer: What else are we going to have besides hot dogs and pop?

Child: Popcorn.

Interviewer: What are we going to do with the hot dogs and pop?

Child: Give them out.

Interviewer: What are you going to do before you start cooking?

Child: (No answer)

March

Interviewer: What did you like about the art gallery?

Child: The pictures... and - uh - that thing what was laying on that thing... that dead thing... and that stuffed lady.

Interviewer: What have you done lately?

Child: We went out ... and then we went to our cousin's.

Interviewer: Did you stay for dinner?

Child: No ... we left at twelve ... then we went to our ... another cousin's and I slept over.

CHILD #4

October

Interviewer: What are we going to line up for at the party?

Child: Um - a party.

Interviewer: What is your mask going to be?

Child: A clown.

(No answer given to other questions asked.)

CHILD #4 (Continued)

March

Interviewer: What did you like about the art gallery?

Child: That ... the pictures ... and ... that dead guy ... that - um - whatever ... that dead person ... and that stuffed - uh - well that stuffed ... whatever it's called.

Interviewer: What did you do last week?

Child: I went to the boat show, and you could see boats, and - uh - then you had races.

Interviewer: Weren't there some animals there too?

Child: Yeah, there was a donkey or a horse, but it was ... and ... and ... they showed you how to saddle the donkey, the right way ... and there's these - uh - how to cook out ... and then there's these - uh - goldfish you could take home.

APPENDIX B

SUMMARY OF RESPONSES TO TEACHER QUESTIONNAIRES, SPRING, 1972

Summary of Responses to Teacher Questionnaires, Spring, 1972

A questionnaire, designed by Lynne Guinet in 1971, was given in 1972 to the five teachers using DISTAR. The responses are summarized below.

Questionnaire to DISTAR Teachers

1. Is the daily half-hour lesson
   a) a reasonable length? 3
   b) too long? 1
   c) too short? _____
   no response 1

2. Do you find it difficult to keep the children's attention?
   a) no more difficult than on other work 4
   b) more difficult than on other work 1

3. Do you have an aide in the classroom? a) yes 1 b) no 3
   no response 1

4. Do you need more help? a) yes 3 b) no 1 no response 1

5. Have you modified the DISTAR system you teach?
   a) quite a lot _____
   b) slightly 3
   c) not at all 1
   no response 1

6. Are all the Take-Homes effective as rewards?
   a) yes 2
   b) no _____
   c) I have changed the Take-Homes to make them more effective 1
   d) don't use them 1
   no response 1

7. Do you teach DISTAR every day?
   a) almost always 4
   b) irregularly 1

8. Have you changed the instructions or formats?
   a) always follow the book 1
   b) have made a few changes 4
   c) have made many changes _____

9. Do you like the DISTAR system?
   a) yes 4 b) no 1 c) no opinion _____

10. Would you like to teach another DISTAR subject?
    a) yes 4 b) no ____ c) no opinion 1

11. In your opinion, could parts of the DISTAR systems, e.g., sound blending exercises, counting drills, be used in any class?
    a) yes 5 b) no ____ c) don't know ____

12. Do you think DISTAR is superior to most other methods for teaching slow learners? DISTAR is a) a better method 3
    b) about the same as other methods 1
    c) not as good as other methods 1

13. Do the children like DISTAR?
    a) most of them like it 4
    b) some do and some don't 1
    c) most of them dislike it ____

14. Have comments from parents about DISTAR generally been
    a) favourable? 3
    b) unfavourable? ____
    c) no comments 2

15. Are tests in the program a good guide to the progress children are making?
    a) yes 2 b) no 2 c) don't know 1

16. Are many children bored with repeating lessons?
    a) many 1 b) a few 3 c) none 1

17. Do one or two children seem to hold up the group, i.e., perform poorly or disturb the class? a) yes 3 b) no 2

18. Is DISTAR easy to use? a) easy 3 b) of average difficulty 1
    c) difficult 1

19. In comparison to other lessons, DISTAR preparation takes
    a) more time 1 b) less time 1 c) about the same amount of time 3

20. How do the children progress?
    a) Most of them pass the tests in the books 4
    b) Some of them pass the tests in the books 1
    c) Few of them pass the tests in the books ____

21. Would you like to use DISTAR again?
    a) yes 4 b) no 1 c) no opinion ____

22. If you had enough help, would you like to use more than one DISTAR system in your class?

    a) yes 4 b) no 1 c) no opinion

23. Do you feel a special class would benefit from having all three DISTAR systems?
    a) yes 2 b) no 1 c) don't know 2

24. Does DISTAR teach what you want it to teach?
    a) yes 2
    b) no
    c) teaches some things and omits others 3

25. Does DISTAR seem to work equally well for all your children?
    a) yes 3 b) no 2 c) don't know

    If not, with which children does it work best?
    - those with better attention spans 2

26. The DISTAR systems are highly structured--same formats, signals, patterned responses from students. Do you like this structure?
    a) yes 4 b) no no response 1

    Do you think it is a good way to teach?
    a) yes 4 b) no 1 don't know

27. Are the children learning the DISTAR material? a) yes 5 b) no

28. Do your very poor students seem to be improving?
    a) yes 4 b) no c) don't know 1

29. Do you feel confident teaching DISTAR?
    a) yes 4 b) no 1 c) no opinion

30. Was your preparation to teach DISTAR adequate? a) yes 4 b) no

    no response 1